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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-0185; Directorate Identifier 2011-CE-002-AD; Amendment 39-16694; AD 2011-10-13]

RIN 2120-AA64

Airworthiness Directives; Diamond Aircraft Industries GmbH Models DA 42, DA 42 NG, and DA 42 M-NG Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Since 2004, more than 30 reports have been received of in-flight loss of a rear passenger door on Diamond aeroplanes, the majority of which were DA 40. In addition, at least 18 doors have been replaced because of damage found on the hinge.

Diamond Aircraft Industries conducted analyses and structural tests to determine the root cause of the door opening in flight. The conclusions were that the primary locking mechanism provided adequate strength to react to the loads in flight. It was also determined that the root cause was the crew not properly securing the rear passenger door by the main locking mechanism, prior to flight. Damage to the hinges has been caused primarily by external loads (wind gust conditions) while the aeroplane was parked.

All DA 40 and DA 42 aeroplanes have a system installed that provides a warning if the main door latch is not fully closed and a secondary safety latch (with retaining bracket) design feature. The initial intended design function of the latch was to hold the rear passenger door in the "near closed" position while on the ground, protecting the door from wind gusts. However, the original retaining bracket Part Number (P/N)

DA4-5200-00-69 might not hold the door in this "near closed" position while in flight.

* * *

This condition, if not corrected, could result in the rear passenger door opening and departing the aeroplane in flight.

We are issuing this AD to require actions to correct the unsafe condition on these products.

DATES: This AD becomes effective June 17, 2011.

On June 17, 2011, the Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD.

ADDRESSES: You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

For service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; e-mail: office@diamond-air.at; Internet: <http://www.diamond-air.at>. You may review copies of the referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call 816-329-4148.

FOR FURTHER INFORMATION CONTACT: Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090; e-mail: mike.kiesov@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on March 8, 2011 (76 FR 12627). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

Since 2004, more than 30 reports have been received of in-flight loss of a rear passenger door on Diamond aeroplanes, the majority of which were DA 40. In addition, at least 18 doors have been replaced because of damage found on the hinge.

Diamond Aircraft Industries conducted analyses and structural tests to determine the root cause of the door opening in flight. The conclusions were that the primary locking mechanism provided adequate strength to react to the loads in flight. It was also determined that the root cause was the crew not properly securing the rear passenger door by the main locking mechanism, prior to flight. Damage to the hinges has been caused primarily by external loads (wind gust conditions) while the aeroplane was parked.

All DA 40 and DA 42 aeroplanes have a system installed that provides a warning if the main door latch is not fully closed and a secondary safety latch (with retaining bracket) design feature. The initial intended design function of the latch was to hold the rear passenger door in the "near closed" position while on the ground, protecting

the door from wind gusts. However, the original retaining bracket Part Number (P/N) DA4-5200-00-69 might not hold the door in this "near closed" position while in flight. To address this problem, DAI have designed an improved retaining bracket, P/N DA4-5200-00-69-SB, which has been satisfactory tested to hold the door closed in flight. In addition, DAI have revised the Airplane Flight Manual (AFM) emergency door unlocked/open procedure.

This condition, if not corrected, could result in the rear passenger door opening and departing the aeroplane in flight.

For the reasons described above, this AD requires implementation of amendment of the AFM procedures for flight with the door unlocked/open, and replacement of the passenger door retaining bracket with an improved part.

You may obtain further information by examining the MCAI in the AD docket.

The MCAI covers Diamond Aircraft Industries GmbH Models DA 40 and DA 40F, DA 42, DA 42 NG, and DA 42 M-NG airplanes. Before the FAA received the MCAI, on November 23, 2010, we issued AD 2010-25-01, Amendment 39-16534 (75 FR 75868, December 7, 2010), as a unilateral action to address this unsafe condition on Models DA 40 and DA 40F airplanes. Since AD 2010-25-01 already addresses this unsafe condition on Models DA 40 and DA 40F airplanes, we are not including those models in this AD.

Before we issued AD 2010-25-01, we received a comment on the notice of proposed rulemaking (NPRM) requesting that, due to common operating practice of leaving the front canopy open during taxi operations, the front canopy latch sensor be disconnected from the 'door open' annunciation. This would allow illumination only when the rear door was not properly latched to alert the pilot to the unsafe condition. In that NPRM, the FAA stated that further analysis was being done.

At this time, we believe the actions required in AD 2010-25-01 adequately address the unsafe condition on Models DA 40 and DA 40F airplanes and the similar actions in this AD address the unsafe condition on Models DA 42, DA 42-NG, and DA 42 M-NG airplanes.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM or on the determination of the cost to the public.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Differences Between This AD and the MCAI or Service Information

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have required different actions in this AD from those in the MCAI in order to follow FAA policies. Any such differences are highlighted in a NOTE within the AD.

Costs of Compliance

We estimate that this AD will affect 162 products of U.S. registry. We also estimate that it will take about 2 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$71 per product.

Based on these figures, we estimate the cost of this AD on U.S. operators to be \$39,042 or \$241 per product.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD Docket.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:



2011-10-13 Diamond Aircraft Industries GmbH: Amendment 39-16694; Docket No. FAA-2011-0185; Directorate Identifier 2011-CE-002-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective June 17, 2011.

Affected ADs

- (b) AD 2010-25-01 addresses this same condition on Diamond Aircraft Industries GmbH Models DA 40 and DA 40F airplanes.

Applicability

- (c) This AD applies to Diamond Aircraft Industries GmbH Models DA 42, DA 42-NG, and DA 42 M-NG airplanes, all serial numbers, certificated in any category.

Subject

- (d) Air Transport Association of America (ATA) Code 52: Doors.

Reason

- (e) The mandatory continuing airworthiness information (MCAI) states:

Since 2004, more than 30 reports have been received of in-flight loss of a rear passenger door on Diamond aeroplanes, the majority of which were DA 40. In addition, at least 18 doors have been replaced because of damage found on the hinge.

Diamond Aircraft Industries conducted analyses and structural tests to determine the root cause of the door opening in flight. The conclusions were that the primary locking mechanism provided adequate strength to react to the loads in flight. It was also determined that the root cause was the crew not properly securing the rear passenger door by the main locking mechanism, prior to flight. Damage to the hinges has been caused primarily by external loads (wind gust conditions) while the aeroplane was parked.

All DA 40 and DA 42 aeroplanes have a system installed that provides a warning if the main door latch is not fully closed and a secondary safety latch (with retaining bracket) design feature. The initial intended design function of the latch was to hold the rear passenger door in the "near closed" position while on the ground, protecting the door from wind gusts. However, the original retaining bracket Part Number (P/N) DA4-5200-00-69 might not hold the door in this "near closed" position while in flight. To address this problem, DAI have designed an improved retaining bracket, P/N DA4-5200-00-69-SB, which has been satisfactory tested to hold the door closed in flight. In

addition, DAI have revised the Airplane Flight Manual (AFM) emergency door unlocked/open procedure.

This condition, if not corrected, could result in the rear passenger door opening and departing the aeroplane in flight.

For the reasons described above, this AD requires implementation of amendment of the AFM procedures for flight with the door unlocked/open, and replacement of the passenger door retaining bracket with an improved part.

Actions and Compliance

(f) Unless already done, do the following actions:

(1) Within 6 months after June 17, 2011 (the effective date of this AD), incorporate Diamond Aircraft Temporary Revision TR-MAM 42-443, pages 3-55a and 3-55b, dated June 17, 2010, into the FAA-approved airplane flight manual following Diamond Aircraft Temporary Revision TR-MAM 42-443, Cover Page, dated June 17, 2010.

(2) Within 6 months after June 17, 2011 (the effective date of this AD), replace the rear passenger door retaining bracket with an improved design retaining bracket following Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 42-083/No. MSB 42NG-014, dated July 13, 2010; and Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-083/WI-MSB 42NG-014, dated July 13, 2010.

(3) As of 6 months after June 17, 2011 (the effective date of this AD), do not install a part number DA4-5200-00-69 rear passenger door retaining bracket.

FAA AD Differences

Note : This AD differs from the MCAI and/or service information as follows: On November 23, 2010, we issued AD 2010-25-01 as a unilateral action to address this unsafe condition on Diamond Aircraft Industries GmbH Models DA 40 and DA 40F airplanes. The European Aviation Safety Agency (EASA) issued AD 2010-0235 to address the same unsafe condition on both DA 40 and DA 42 series airplanes. Since AD 2010-25-01 already addresses this unsafe condition on Models DA 40 and DA 40F airplanes, we are not including those models in this AD.

Other FAA AD Provisions

(g) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, Standards Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Mike Kiesov, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4144; fax: (816) 329-4090. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, a federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control

Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave., SW., Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

Related Information

(h) Refer to MCAI EASA AD 2010-0235, dated November 10, 2010; Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 42-083/No. MSB 42NG-014, dated July 13, 2010; Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-083/WI-MSB 42NG-014, dated July 13, 2010; and Diamond Aircraft Temporary Revision TR-MAM 42-443, pages 3-55a and 3-55b, dated June 17, 2010, for related information.

Material Incorporated by Reference

(i) You must use Diamond Aircraft Industries GmbH Mandatory Service Bulletin No. MSB 42-083/No. MSB 42NG-014, dated July 13, 2010; Diamond Aircraft Industries GmbH Work Instruction WI-MSB 42-083/WI-MSB 42NG-014, dated July 13, 2010; and Diamond Aircraft Temporary Revision TR-MAM 42-443, pages 3-55a and 3-55b, dated June 17, 2010, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Diamond Aircraft Industries GmbH, N.A. Otto-Straße 5, A-2700 Wiener Neustadt, Austria, telephone: +43 2622 26700; fax: +43 2622 26780; e-mail: office@diamond-air.at; Internet: <http://www.diamond-air.at>.

(3) You may review copies of the referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(4) You may also review copies of the service information incorporated by reference for this AD at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Kansas City, Missouri, on May 3, 2011.

Earl Lawrence,
Manager, Small Airplane Directorate,
Aircraft Certification Service.